



# DAYLIGHT

*Creation Science for Catholics*

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## Editorial

It was a great pleasure to meet several members at the recent *Faith of our Fathers* conference, and to welcome some new supporters. One consequence was an invitation to address a group from *Human Life International*. I recently returned from Aylesford, Kent, where I spoke on the theme "Evolution: is it a valid belief-system?" to about 25 participants in a pro-life youth leadership programme. A keynote theme was the necessity to question the truth of the messages given out by the media, and to seek out facts rather than accept biased opinions. The topic provided plenty of evidence of this need.

TAN Books have just informed me that the new edition of Gerry Keane's book *Creation Rediscovered* is now definitely going into print, and I am hoping to get supplies in a few weeks time. Several people have asked for copies to be reserved for them - if you want priority on the first consignment please let me know, if you have not already done so — preferably in writing. If you are able to help at all in finding outlets for the book e.g. by approaching bookshops / repositories for orders, this would be most welcome. Small discounts will be negotiable on quantity orders, and complimentary copies supplied to effective 'agents' selling sufficient numbers!

Thank you again for your continued support, prayers, encouragement and renewed subscriptions. My Certificate course in teaching pupils with Specific Learning Difficulties was successfully completed, and I am looking forward to a change of role in September when becoming Head of Learning Support.

### In this issue...

#### Catholic Teachings on Biblical Creation.

The book from which these extracts were taken has the advantage of having been written since the death of Charles Darwin but without the taint of attempts to accommodate Scripture to long ages and evolutionary origins. This section emphasises the **supernatural** aspects of the events of Creation and the Fall which are so often understated by modern theologians. There follows a reasoned defence of the authenticity of the historical nature of the books of Moses. These facts and arguments form the basis of any attempt to prove the

Creation account of origins from Biblical sources. They make it clear that the 'literalist' interpretation of Genesis, and the belief that Moses wrote it, is traditional Catholic doctrine, not naive fundamentalism. If Protestant Creationists and orthodox Jews share the same beliefs, then good for them! I would be interested to hear from them any responses to these articles.

Further extracts reinforcing traditional doctrines on the Creation accounts will, I hope, make interesting reading in future issues. I apologise for the uneven quality of the print in my copy of the book.

### **Catholic Scientists**

This list provides ample evidence that Catholics, including many clerics, have been in the forefront of good scientific endeavours for centuries. Of course, the Church has opposed research carried out by immoral means or with evil intent, and false philosophies masquerading as science. The list is by no means exclusive, neither in the choice of scientists named nor in the scope of their achievements. The CTS pamphlet actually names **86 important Catholic scientists**.

### **A Leaf Outsmarts Scientist.**

The lighter style, obviously American, is quite appealing — such writing might be valuably employed on other themes today. It reminded me of an American pamphlet on altar-serving I saw which managed to drag baseball into it!

### **Malthus**

As one of the sources of Darwin's ideas, he seemed overdue for an appearance in this magazine, and this was a useful concise article. The connection with the population controllers is obviously significant.

### **A thought on Eclipse Day, August 11th.**

A topical fact surely against all odds — the exact fit of the Moon over the Sun as seen in a solar eclipse depends on the precise 400 to 1 relationships of their distances away from us, and their relative diameters. On no other planet can such a phenomenon occur. The heavens truly tell us the glory of God.



# Catholic Teachings on Biblical Creation— Part 1 Divine Revelation through the Books of Moses

taken from *Handbook of the Christian Religion*

by Rev. W. Wilmers, S.J. Edited by Rev James Conway, S.J.  
Benziger Bros, New York. 2nd Edition 1892

## PRE-CHRISTIAN REVELATION.

### L PRIMITIVE REVELATION.

12. The primitive revelation was supernatural in form and substance.

I. Our first parents received a revelation supernatural in form and substance; supernatural religion, therefore, reaches as far back as the creation of man.

Supernatural in substance is that revelation which communicates truths inaccessible to human reason, imposes obligations, holds out rewards and punishments depending solely upon God's free choice, or extending beyond the teachings of reason. Such were the *truths, commandments, rewards, punishments* contained in the religion communicated to our first parents. But if the primitive revelation was supernatural in substance, it was likewise supernatural in form; for supernatural truths can only be made known in a supernatural manner. Besides, the Sacred Writings expressly record that God conversed supernaturally with our first parents and made His will known to them by a positive revelation.

1. *Truths* regarding his origin and condition were communicated to our first father which he could have learned only from revelation. Even though he had known by the light of reason that God was his Creator, yet reason could not tell him that God had directly created his body as well as his soul; nor could reason teach him how his body had been formed by God. But from the words: "Till thou return to the earth, *out of which thou wast taken*; for dust thou art, and into dust shalt thou return" (Gen. iii. 19), we see that Adam was informed of both these facts. The same applies to the creation of Eve, as may be seen from the words: "This is bone of my bones, and flesh of my flesh" (Gen. ii. 23). Moreover, the supernatural gift of the immortality of his body was made known to Adam by revelation; for the threat of losing it by disobedience clearly implies its possession.

### *Primitive Revelation.*

2. A *positive command* is involved in the words: "Of every tree of paradise thou shalt eat; but of the tree of knowledge of good and evil thou shalt not eat" (Gen. ii. 16, 17).

3. A *supernatural retribution* is implied in the threat and subsequent execution of a supernatural punishment (Gen. ii. 17). Death, it is true, is natural as resulting from the nature of man; but the privation of the supernatural gift of immortality was a supernatural punishment, as it proceeded from the free design of God. Not without reason does Holy Writ mention in particular the physical effects and penalties of sin. For, although these penalties were less than those affecting the soul, viz., the loss of sanctifying grace and of the right to eternal happiness, yet they were, for the moment, more keenly felt and more appalling; and thus they may be considered as a foretaste of the future punishments to be inflicted upon the soul.

II. After the fall the former *supernatural* state of friendship with God is restored; the conqueror of mankind himself is conquered; and thus is again opened to man the prospect of future supernatural happiness. All this is contained in the solemn *promise of a Redeemer*. "I will put enmities between thee and the woman, and thy seed and her seed: she shall crush thy head, and thou shalt lie in wait for her heel" (Gen. iii. 15). This promise, justly called the *Protoëvangel* (first gospel), henceforth forms the germ of supernatural religion.

13. God exercised a special providence towards the preservation of supernatural religion.

1. Though it was easy in the beginning, owing to the length of human life, to transmit to posterity the supernatural revelation once given, God nevertheless, to insure its preservation, continued His supernatural intercourse with the human race. With threats and punishments He rebuked the wayward Cain (Gen. iv.); and subsequently, when moral corruption prevailed, His admonitions were conveyed through Noe to all mankind. Then followed the deluge—that great catastrophe which impressed itself indelibly upon the memory of man.

### *Apostasy from the Primitive Religion.*

kind, and became to succeeding generations a striking evidence of God's retributive justice.

2. After the deluge God kept up an intimate intercourse with *Noe*, the head of our rescued race. As to our first parents, so also to this new race He gave a positive law: "Flesh with blood you shall not eat" (Gen. ix. 4). He made a new covenant with man, and chose the rainbow as its everlasting memorial. Through Noe God pronounced a blessing upon Sem and Japheth, and cursed Canaan, the son of Cham.

The period from Adam to Abraham is called that of the *natural law*, because positive laws and supernatural revelations were not numerous during that time, and because there was as yet no proper code of laws, such as was afterwards given to God's people. At no time, however, was man exclusively under the natural law.

3. But the *promise of a Redeemer* made to Adam and Eve was renewed and more definitely expressed in the blessing pronounced by Noe on his sons, Sem and Japheth. "Blessed be the Lord God of Sem, be Canaan his servant. May God enlarge Japheth and may he dwell in the tents of Sem, and Canaan be his servant" (Gen. ix. 26, 27). Sem is especially blessed by the fact that he is chosen to be the ancestor of the Messias. Japheth is blessed, inasmuch as his descendants, who were scattered chiefly over Europe, have reaped the blessings given to Sem. Here there is evidently a question of *spiritual blessings*, of spiritual goods, and of a spiritual dwelling in the tents of Sem; for, if the descendants of Japheth had taken actual possession of the tents of Sem, or had seized on his material goods, the blessing of Japheth, contrary to the intention of the giver, would have been a curse to Sem.

14. Yet a universal apostasy from natural as well as supernatural religion ensued under the form of paganism and idol-worship.

1. Notwithstanding the chastisement inflicted by the deluge, man soon returned to his evil ways. Once more God revealed Himself, as it were, visibly, when, by the confusion of tongues, He prevented the completion of the tower of Babel, which was the goal of man's ambition and was in-

### *Primitive Revelation.*

tended to be the proud monument of his power. Yet corruption continued to increase. A second and almost universal apostasy from God ensued. Man disregarded the revealed truth and all God's commands and threats.

2. Then, as the Apostle says: "God suffered all nations to walk in their own ways" (Acts xiv. 15). From this time He does not, as a rule, employ any extraordinary measures for their rescue, but leaves them partly to their religious *traditions*, until these became entirely disfigured; and partly to that voice which, through God's *creatures* and human *reason*, speaks to every individual, proclaiming that there is a Lord of heaven and earth, a supreme Law-giver and Judge, a searcher of hearts. Thus God, even after men had rejected the gift of revelation, "did not leave Himself without a witness" (Acts xiv. 16). If there were individuals among the *heathens* (by this name we distinguish those *nations* who did not possess the clear light of revelation) who knew and worshipped God as the *Author of nature*, we may suppose that in His goodness He contrived a means to manifest Himself to them also as the *Author of grace*, and thus to bring them to salvation.

3. This natural testimony concerning God, however, though it could not be disregarded, was misinterpreted, and thus, to some extent, rendered ineffectual. In the place of the one true God other divinities were substituted by transferring to visible objects the original, true, though indefinite, idea of God as the sovereign Lord of all things, which is naturally developed in every man by the contemplation of the universe. Such was the origin of *idolatry*. The sensual nature of man, which leans towards sensible objects; servility towards the mighty of this earth; immoderate attachment to deceased friends and relatives, whose memory was perpetuated by images; finally, the evil one, who tried to rob God of the worship due to Him—such have been the immediate causes of ascribing divine attributes to *natural objects*, to *heroes*, to *images*, and even to *demons*. Thus arose the various forms of idolatry.

## *Preparation for the Advent of the Redeemer.*

### **II. PATRIARCHAL REVELATION.**

**15. By the call of Abraham and the separation of his posterity God secured the true religion among the Jewish people and thus prepared for the advent of the Redeemer.**

While the nations were departing more and more from their Creator and going each its own way, God chose *Abraham*, a descendant of Sem, and made him the father of a race which was to be the special object of His solicitude, the guardian of the supernatural revelation, and the herald of the promised Messias. This race, from which the Messias was to spring, was, by its separation from other nations, and by extraordinary temporal blessings, privileged and sanctified above the rest of mankind, and, at the same time, preserved from moral corruption. God, if He chose, could have effected this design by other supernatural means; but, in His wisdom, He loves to give a natural groundwork to His supernatural dispensations. Abraham was ordered to leave Chaldea, his own country, and to go into Canaan. God spoke to him: "I will make of thee a great people, and bless thee" (Gen. xii. 2, 3). Henceforth God continued to converse familiarly with Abraham. As a sign of His covenant with him He chose circumcision; and herein we discover the first vestige of the Mosaic law.

But God gave also special and, at times, appalling evidences of a supernatural providence towards other peoples. Thus, for instance, Sodom and Gomorrah were destroyed by fire and brimstone in punishment for their unnatural crimes.

**16. At the separation of the Jewish people God intended the reunion of the human race through the coming Redeemer.**

The human race was not, however, to be divided by an everlasting barrier. This separation was made rather in order that the Gentiles might, by their errors, finally recognize the vanity of human aspirations, and thus become the more susceptible for salvation; and that the Jews, on the other hand, under the special guidance of God, might be the better fitted to communicate salvation to the Gentiles. Salvation was

### *The Mosaic Revelation.*

to proceed from the *Messias*, to whose coming henceforth God's people eagerly looked forward. To the blessing pronounced on Abraham God added the promise: "And in thee shall all the kindreds of the earth be blessed" (Gen. xii. 3). This promise was still more explicitly repeated in favor of Abraham's son *Isaac*: "In him all the nations of the earth shall be blessed" (Gen. xviii. 18). And again: "In thy seed all the nations shall be blessed" (Gen. xxii. 18). It cannot here be a question of temporal blessings; for such blessings have not been given to the nations through Abraham's posterity. According to Jewish and Christian tradition, these words refer to the spiritual blessings already promised to our first parents, which the *Messias* was to bring (Gal. iii. 8, 16). *Jacob*, the last of the patriarchs, at his death, addressed to his son *Juda*, and through him to the tribe called after his name, the following words: "The sceptre shall not be taken away from *Juda*, nor a ruler from his thigh, till he come that is to be sent, and he shall be the expectation of nations" (Gen. xlix. 10). The time of the coming of the *Messias* was to be marked by the cessation of the sovereignty of the Jewish nation. At the coming of the Desired of nations the barrier between the Gentiles and the chosen people was to be removed.

### III. THE MOSAIC REVELATION.

17. The Mosaic law, as to its contents, was partly of a general nature, regarding all mankind; partly of a special character, regarding only the people of Israel.

The revelation made to the people of God through Moses is called the *Law*, because of the many precepts and ordinances which it contained. Its contents are partly of a general and partly of a special nature.

I. We call that part of the Mosaic law *general* which reveals truths or contains commandments directed to, and binding on, all mankind. Among them are chiefly those truths which make up the substance of the primitive revela-

### *Contents of the Mosaic Law.*

tion—the doctrine concerning God as our Creator and last end, and regarding the promised Redeemer. The Mosaic revelation gave great prominence to the unity of God, because this doctrine, though clearly contained in the patriarchal revelation, had been gradually lost sight of by other nations. The immortality of the soul, on the other hand, was barely hinted at, or taken for granted rather than emphasized. The natural moral law was definitely proposed in the Decalogue, which contained the immediate inferences from the universal moral law, and which, being based upon the natural relations of man to God, is equally binding upon all.

II. The *special* part of the Mosaic law consists of those ordinances which concerned only the people of Israel.

1. Among the latter are many of the more *remote applications* of the natural moral law, whereby certain actions are, under given circumstances, commanded, forbidden, advised, or permitted. If some things which are permitted or tolerated are not quite consistent with the perfection of the moral law, the reason is to be found in peculiar circumstances. This applies especially to *polygamy*. For although it is inconsistent with the perfection of marriage, yet it is not altogether contrary to its design, and God could permit it to the Israelites as formerly to the patriarchs, because the chosen people were to be multiplied, not, like the Christians, by way of aggregation, but by natural propagation. *Divorce*, which is likewise not in accordance with the perfection of the marriage-bond, could have been permitted or tolerated to prevent greater evils (e.g., domestic strife and murder).

2. The *ceremonial law*, which defined the manner of divine worship, was founded, it is true, upon a principle binding upon all men. But the special ordinances, which depended solely upon God's free choice, concerned the people of Israel only. Among them are : (a) Sacred *observances*, such as abstinence, ablutions, circumcision, the various kinds of sacrifice, etc. (b) Sacred *places*, *vessels*, etc., e.g., the temple, the tabernacle. (c) Holy *seasons*, viz., numerous feasts, chiefly in commemoration of divine favors. (d) Sacred *persons*, viz., priests and levites, with the high priest, the supreme judge in religious matters, at their head. The *Prophets*, who arose from time to time, were extraordinary messengers of God, whose mission it was to direct the people's attention to the coming Messias, to unfold the doctrines of faith, and to inculcate the observance of the law.

The multitude of precepts and observances was calculated to separate the chosen people from other nations, and to perpetuate the remembrance of the true God and of His promises. Besides, the ceremonial law had also the remoter object of foreshadowing "things to come" (Col. ii. 16; Heb. x. 1), as prefiguring Christ and the

### *The Mosaic Revelation.*

spiritual goods to be obtained through Him. The Old Testament was, in the words of St. Augustine (*de Civ. Dei*, xvi. 26), "the veil of the New, and the New Testament the unveiling of the Old." Thus, the paschal lamb is not only a memorial of the deliverance from Egypt, but a type of the sacrifice of Christ on the cross and of our deliverance from the bondage of sin.

3. The *civil law* regulates the mutual relations of superiors and subjects ; of subjects among themselves ; of the members of families to one another; and, finally, the relation of God's people to foreigners. God was properly King of the people of Israel in virtue of the covenant made with them (*Exod. xix. 4-8* ; *Deut. xxvi. 16-19*). As such He was acknowledged by the people, and as such He manifested Himself to them (*Num. xxvii. 21*). Although this relation had been somewhat changed by the subsequent institution of kings, yet God did not thereby cease to be the King of Israel, since the visible kings were regarded only as His representatives. By means of this *theocracy* the people were more effectually preserved from idolatry, while all their observances, even those of the civil law, were marked by a sacred character.

18. The Mosaic law had also a twofold sanction : one temporal, or pertaining to this life ; and one spiritual, or pertaining to the next life.

As the substance of the Mosaic law was of a twofold character, so also its sanction, that is, the reward or punishment destined for those who obeyed or transgressed it.

1. Moses in the law points explicitly only to *temporal prosperity* as the reward for the observance of the law, and to *temporal evils* as the punishment for its transgression. In this sense we may say that the Mosaic law had only a temporal sanction, and, in fact, the people's attention was justly directed to this kind of sanction. For, being prompt of execution, such sanction was especially fitted to incite them to the observance of the law, and was in keeping with God's relation to them as temporal Sovereign.

2. A future *spiritual recompense*, however, was also held out to the observers of the law. The Israelites could not have been ignorant that some sort of reward for good and punishment for evil was to be expected in the next life, since even the pagans, particularly the Egyptians, believed in the immortality of the soul, as well as in some sort of future retribution. But the Israelites knew that reward to be a supernat-

### *Abolition of the Mosaic Law.*

ural one; for such was the promise made to the patriarchs (Heb. ix. and xi.), consequently also to the Israelites, on whom the natural moral law and other traditional precepts were likewise binding. It was also the general conviction of the Jews at the time of Christ that by observing the law they would possess everlasting life (Luke xviii. 18). This future reward was promised not only for obedience to the moral law, but even for the observance of positive ordinances, though the Mosaic law makes no express mention of it, for these ordinances were likewise given by God's command, and were, therefore, suited to be the object of a future recompense.

Though it was possible for those who lived under the pre-Christian dispensation to obtain justification through sanctifying grace (Heb. xi.), yet the Old Law, as such, could not confer it. It is true, the law prescribed those acts which lead to justification and to salvation—acts of faith, hope, and charity ; but grace, which alone renders efficacious the exercise of these and similar acts, was not the property of the Old Covenant, but was peculiar to the Christian dispensation, in view of which it was conferred in the Old Law.

#### **19. The Mosaic law was to be abolished by the Messias.**

The Mosaic law, directly as well as indirectly, points to its own future abolition.

1. If the *division of the human race* effected by the call of Abraham was to cease on the coming of the Messias (16); therefore the barrier raised by the Mosaic legislation was destined to be removed. Since the heathen world was not to be excluded from salvation; since, moreover, the Gentiles also, though less definitely, looked forward to a Redeemer (33), they too were to be incorporated with Him, to appropriate the blessings which He brought them; and thus He was destined to unite both Jew and Gentile in one religious communion. This, however, could not be as long as the people of Israel were cut off from all the other nations, as long as Jerusalem was the only place where the true God was to be worshipped. The promise given to the patriarchs of a Messias, a Redeemer of all mankind, and, consequently, the founder of a new religion, which was to embrace all nations, contained an indirect allusion to the future abolition of the Mosaic law.

### *Divine Origin of Pre-Christian Revelation.*

2. Still more definitely did the promise given by God on Mount Horeb point to a new law-giver and, consequently, to the abolition of the Mosaic law. When the people, fearing the voice of the Lord and His majesty, begged Him to speak to them no more, the Lord said to Moses : "I will raise them up a prophet out of the midst of their brethren *like to thee*; and I will put My words in his mouth, and he shall speak to them all I shall command him" (Deut. xviii. 18). God promised a prophet like to Moses, and a mediator between Him and His people. This prophet was none other than He who in the New Law is so often called *the prophet, or the great prophet*, who was to come into the world (John vi. 14). Thus St. Peter (Acts iii. 22) and St. Stephen (Acts vii. 37) interpret the Mosaic prophecy. And, in fact, none other among the prophets who came after Moses, nor even the whole line of prophets collectively, could fully realize that promise ; for "there arose no more a prophet in Israel like unto Moses" (Deut. xxxiv. 10). Unless we admit that God's promise has remained unfulfilled, or that it was only very partially fulfilled, we must conclude that it referred to a prophet who was to be, like Moses, the founder of a new law. For it is as a law-giver that Moses chiefly distinguished himself, and here it is with reference to the Mosaic legislation that a prophet like unto Moses, and, consequently, a legislator, is promised. Thus the Mosaic law itself, by pointing to the Messias as the founder of a new law, expressly pronounces its own future abolition.

### **IV. THE DIVINE ORIGIN OF THE PRE-CHRISTIAN REVELATION ESTABLISHED BY MIRACULOUS FACTS.**

#### **20. Moses proved his divine mission by miracles and prophecies.**

If Moses was really a divine messenger, as he professed to be, the divine origin of what he taught as such is established by this very fact. But by the same fact the primitive and patriarchal revelations are also proved to be divine, because Moses, a messenger of God, based his law upon them as upon a supernatural foundation, and thus handed it down to posterity as divine. To convince our-

### *Moses' Divine Mission.*

selves of the divine mission of Moses we might appeal to his moral character, which excludes all possibility of imposture. We might point to the sublimity of his teaching concerning God at a time when other nations were shrouded in the darkness of ignorance and superstition. But the chief evidence of his divine mission are the miracles and prophecies on which he himself grounded his authority (10).

Two things must be established in regard to these miracles and prophecies in order that they may be considered as an evidence of Moses' divine mission: (1) that they were *real* miracles and prophecies, and (2) that Moses *appealed* to them as an evidence of his divine mission.

I. It cannot be gainsaid that those extraordinary actions performed by Moses, and considered by him as miracles, were really such; and that his predictions were also true prophecies.

It is certain beyond doubt that in the narration of those facts, set down as miracles, we possess historical records, and not, as rationalists pretend, mere poetical exaggerations of every-day occurrences. Moses characterizes them as supernatural facts when he thus addresses the people: "Know this day the things that your children know not, who saw not the chastisements of the Lord your God, His great doings and strong hand and stretched out arm, the signs and works which He did in the midst of Egypt to king Pharaoh and to all his land, and to all the host of the Egyptians, and to their horses and chariots: how the waters of the Red Sea covered them, when they pursued you, and how the Lord destroyed them until this present day: and what He hath done to you in the wilderness, till you came to this place: and to Dathan and Abiron, whom the earth, opening her mouth, swallowed up with their households and tents. Your eyes have seen all the great works of the Lord, that He hath done" (Deut. xi. 2-7). How would Moses have dared to relate to the people as something extraordinary every-day occurrences of which they themselves had been witnesses? The people also readily acquiesced in the record of these signs and wonders (Deut. vi. 22). But how could the people permit every-day occurrences which they themselves had witnessed to be handed down to their descendants as signs and wonders? There can be no doubt, then, that we possess an historical record in the Mosaic narrative.

1. The supernatural character of the facts related as miracles follows:

a. *Indirectly* from the conduct of Moses and the Israelites and the behavior of their adversaries. If the facts characterized as miracles were not really such, how could Moses have

### *Divine Origin of Pre-Christian Revelation.*

dared to make them the groundwork of his law? The assurance with which he appealed to them sufficiently proves that he was fully convinced of their supernatural character. And how could he palm off mere natural phenomena as miracles on a people so suspicious and turbulent as the Jews are known to have been? The people, in fact, had reason carefully to inquire into the circumstances of the facts, since on them depended whether or not they should submit to the heavy yoke of the law. Much less could national vanity have been the cause of attributing a supernatural character to the deeds of Moses; for many of them are chastisements for the people's transgressions, and with almost every one is associated some trait of disloyalty, ingratitude, or sensuality, the mention of which would rather wound than flatter their pride. Besides, not only the Israelites, but also the Egyptians, who were quite familiar with the conditions of the country, and the Magi, so expert in all arts, like Pharaoh, recognized in those signs "the finger of God" (Exod. viii. 19); and the renown of these wondrous deeds penetrated even as far as Canaan (Jos. ii. 10).

b. Moreover, it may be *directly* proved that in all those occurrences there are, at least, some circumstances which give evidence of their supernatural character. Thus the plagues of Egypt, by their sudden appearance and disappearance according to the prediction and at the command of Moses, by the rapidity of their succession, by their violent nature, and particularly by the fact that they spared the Israelites, display a supernatural character. It was not without cause that God chose facts which, under other circumstances, might appear natural in Egypt, since in these the Egyptians could more easily distinguish the miraculous than in less familiar occurrences. The passage of the Red Sea, as also the manna in the desert, owing to the accompanying circumstances, are manifestly supernatural.

It was in firm reliance on a miracle, which he had expressly predicted, that Moses led the Israelites in a southerly direction to the *Red Sea*, instead of going around it in an easterly course. Having, at God's command, stretched forth his hand over the sea,

### *Moses' Divine Mission.*

the waters were divided, and a parching wind dried the ground, while the waters stood like a wall on their right and left. Again Moses stretched forth his hand towards the sea, and it closed over the Egyptian hosts (Exod. xiv).

The *manna*, which fed the Israelites, fell with the dew from heaven, while the sweet gum known by that name oozes from the branches of certain shrubs. The former fell for the first time when the Israelites entered the desert of Sin, accompanied them on their eastward journey, and fell for the last time on the plain of Jericho (Jos. v. 12). The latter is to be found only in a small tract between the coast and the highest mountains. The former roused the astonishment of the Israelites; the latter has nothing remarkable about it. The former fell at night and early morning; the latter flows all day long. The former did not fall on the Sabbath, but a double quantity fell the day before; the latter flows regularly. The former fed the Israelites without intermission for the space of forty years; the latter lasts only for six weeks, during the great heat of summer. The former could be preserved only from the sixth to the seventh day, but putrefied if kept on other days; the latter may be kept for years. The former sufficed during forty years for the sustenance of nearly three millions of men; the latter is to be found only in small quantities, and some years not at all. Hence the fall of manna foretold by Moses was a supernatural occurrence (Exod. xvi.).

2. The same may be said of the *prophecies*. On his first appearance in Egypt Moses predicted the chastisements which were to visit the country (Exod. iii. 20; x. 4); their termination (Exod. viii. 11); the fall of the manna (Exod. xvi. 6). Neither the Israelites nor the Egyptians were so unacquainted with the quality of the soil or the climate as not to foresee ordinary occurrences, if there had been question of such. Besides, it is evident that Moses could only by divine communication know beforehand the events which depended, not on natural causes, but on God's free will. For instance, he could know only by divine inspiration that of all those over twenty years of age who had set out from Egypt, only Caleb and Josue would enter Palestine (Num. xxvi. 64).

II. From his first appearance at the court of Pharao till the end of the forty years in the desert, Moses *appealed* to these miracles and prophecies as to an evident proof of His divine mission (Exod. vii. 9). He foretold the death of Dathan and Abiron in these words: "By this you shall know that the Lord hath sent me to do all things that you see, and that I have not forged them of my own head:

### *Supernatural Facts of the Mosaic Revelation.*

if these men die the common death of men, and if they be visited with a plague wherewith others also are wont to be visited, the Lord did not send me; but if the Lord do a new thing, and the earth opening her mouth swallow them down, and all things that belong to them, and they go down alive into hell, you shall know that they have blasphemed the Lord" (Num. xvi. 28-30).

Thus God repeatedly sealed the mission of Moses with divine approval, and thus established the supernatural character not only of the Mosaic but also of the patriarchal and the primitive revelations.

### V. THE SUPERNATURAL FACTS OF THE MOSAIC REVELATION PROVED BY DOCUMENTARY EVIDENCE.

#### **21. The books of Moses are authentic historic documents.**

That the revelation promulgated by Moses was divine is proved by his divine mission. The divine mission of Moses is established by miracles and prophecies, to which he appealed as an evidence. But how do we prove the authenticity of those books whence we derive our information regarding those facts and the accompanying circumstances? The answer to this question forms the last link in the chain of evidence which establishes the credibility of the pre-Christian revelation.

We must distinguish a twofold authority of the sacred books: divine and human. The divine rests on *inspiration*, namely, such an influence of the Holy Ghost upon the writer as to render the book written really divine. For the present we are not concerned with the question of inspiration. We have only to prove that the five books of Moses (or Pentateuch) can claim, at least, that authority which is due to any other merely historical document.

An historical book is *authentic* if it contains historic truth. Now, if the *author* of a given book is known to us, and if we have the certainty that the book has undergone *no material change* in the course of time, we may form an opinion of its authenticity, whether others bear witness to the trustworthiness of the author, or the work itself gives evidence of his knowledge and truthfulness. In order, therefore, to show the authenticity of the books of Moses, we have to prove (1) their *genuineness*, (2) their *integrity*, and (3) the *author's trustworthiness*.

1. A book is *genuine* when it has for its author the person

### *Authenticity of the Mosaic Revelation.*

whose name it bears, or, if anonymous, when it is shown to have been written about the time to which it is attributed. Now, the genuineness of the Pentateuch rests on both *external* and *internal* grounds.

a. The testimony of the Jewish people at the time of Christ represents Moses as the *author of the Pentateuch*: "They have Moses and the prophets, let them hear them" (Luke xvi. 29). The early Christians, who received these books from the Jews; the pagan philosophers, who were equally hostile to Christianity and to Judaism; the Greek and Roman writers, who refer to those writings, were convinced of their genuineness. The Jews bore the like testimony to the genuineness of these books when, about three hundred years before Christ, they translated them into Greek; and again when (500 b.c.), after the Captivity, Esdras collected and ordered them. The Pentateuch, as may be proved from records, existed one thousand years before Christ, at the time of the defection of the ten tribes; for the Samaritans received it from the tribes of the kingdom of Israel. But after the separation they certainly would not have accepted from the tribe of Juda a spurious book even under the name of Moses. Moreover, the public feasts, the popular customs, the divisions of the land,—all refer to the Law, which derives its authority from the fact of its being written by Moses. And the Israelites, doubtless, must have known the author of that code of laws which shaped their religious, moral, and social life. Thus the genuineness of the books of Moses is clearly proved by external evidence.

b. The author's style and tone, his familiarity with the manners and customs of the Egyptians and other nations—in short, all *internal evidence* likewise goes to prove the authorship of Moses. The author writes as an eye-witness, and as one who for years had lived among the people whose history he relates, as one who noted many of the occurrences just as they took place; and therefore he subsequently summarized, defined more exactly, and inculcated a second time the laws which he had already given.

### *Supernatural Facts of the Mosaic Revelation.*

2. We call a book *entire* or *incorrupt* which has not undergone any alteration in its essential parts. The essential parts of the Pentateuch are the teachings regarding faith and morals, and the record of those facts upon which the Jewish religion was based.

a. That the Jews *would not* falsify their books may be inferred from the high esteem in which these were universally held. Had any falsification been attempted, it would have been chiefly in those passages which record and reprove the vices of the people; yet these are left intact to the present day. The different readings in trifling matters, which have been always scrupulously noticed, show the conscientiousness of the copyists.

b. The Jews *could not*, if they would, falsify the books of the Law. The Scriptures were not only deposited in the Temple; they were also in the hands of many, and at all-times there were zealots who would have detected and denounced any attempt at falsification. Nor do we find that the prophets, who so unsparingly rebuked all other crimes, ever accused priests or people of falsifying the Sacred Writings. A falsification of the books of Moses, after the separation of the ten tribes, was utterly impossible, owing to the jealousy with which the two kingdoms regarded each other.

3. The *trustworthiness* of the author of the Pentateuch is proved by the strongest external and internal evidence.

a. *External evidence.* The trustworthiness of an historian is beyond doubt if contemporaries and posterity unite in bearing witness to his veracity; for it would be only for the gravest objective reasons that all would unite in such testimony. Now, the contemporaries of Moses bear witness to his veracity by the fact that an entire people accepted a law the binding force of which rested upon his authority. The people possessed the same proofs of the truthfulness of Moses as they did of his divine mission; for a messenger of God cannot but be truthful in his spoken and written statements concerning the religion he proclaims, since his words in this case are God's voice. Posterity bears witness to the truthful-

### *Authenticity of the Mosaic Revelation.*

ness of Moses by the fact that it submitted to those laws and precepts which rest solely upon the facts recorded by him.

b. With regard to *internal evidence*, Moses *must have known* without doubt (1) the truth of those occurrences which happened under his own eyes. Previous events, which he only briefly and incidentally mentions, could easily be handed down by tradition, considering the longevity of the patriarchs. The prudence displayed by him on many occasions, apart from the divine assistance, secured him against self-deception. (2) That he *would not deceive* we may conclude from the candor and sincerity which always characterized him. (3) Besides, if he would have intended to deceive, he *could not*; for the facts which he relates took place before the eyes of all, or were proved by miracles of which all were witness. This is particularly the case with the divine apparition in the burning bush. Moses proved to the people by many miracles that the Lord had spoken to him. As to the facts of past ages, they were equally well known to the people themselves, who certainly would have contradicted him if his narrative were untrue.

In like manner we might show the authenticity of the other sacred books of the Jews; for these also have the testimony of a whole nation in their favor; and their authors are either known to us as men worthy of credence, or must have been known as such at least to their contemporaries, who manifestly put implicit faith in their statements.

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### *In Future Issues*

The Creation of the World in General

The Spiritual World

The Material World

Man; Our First Parents and Original Sin

## **Notable Inventions, Discoveries or Developments by Catholic Scientists**

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<i>CONTRIBUTION</i>	<i>SCIENTIST</i>
<b>Astronomy</b>	
Modern heliocentrism	Canon Nicolaus Copernicus (1473-1543)
Latitude measurement	Abbé Jean Picard (1620-1682)
Longitude measurement	Giovanni Cassini (1625-1712)
Modern calendar	Pope Gregory XIII (1502-1585)
Mapping of the Moon	Francesco Grimaldi SJ (1618-1663)
Stellar classification	Angelo Secchi SJ (1818-1878)
<b>Anatomy</b>	
Human Muscle system	Andreas Vesalius (1514-1564)
The Ear	Eustachius of Naples (1520 -1574)
Movement of Blood	Cesalpinus of Arezzo (1519-1603)
<b>Mathematics</b>	
Modern algebra	Francois Vieta (1540-1603)
Pendulum clock; speed of sound	Friar Marin Mersenne (1588-1648)
Analytical Geometry	René Descartes (1596-1650)
<b>Chemistry</b>	
Oxidation and analysis	Antoine Lavoisier (1743-1794)
Organic analysis and catalysis	Louis Thenard (1777-1857)
<b>Biology</b>	
Digestion and respiration	Abbé Spallanzani (1729-1799)
Biogenesis principle	Louis Pasteur (1822-1895)
Genetic principles	Abbot Gregor Mendel (1822-1884)

## *CONTRIBUTION*

## *SCIENTIST*

### **Medicine**

Stethoscope	René Laennec (1781-1826)
Aseptic principles	Ignaz Semmelweis (1818-1865)
Immunisation & Bacteriology	Louis Pasteur (1822-1895)

### **Physiology**

Comparative physiology	Marcello Malpighi (1628-1694)
Cell theory and histology	Theodor Schwann (1810-1882)
Digestion; homeostasis principle	Claude Bernard (1813-1878)

### **Geology**

Fossils and stratigraphy	Bishop Niels Stensen (1631-1687)
Geometric Crystallography	Abbé Haüy (1743-1822)

### **Physics**

Atomic theory; speed of sound	Pierre Gassendi (1592-1655)
Telescope; pendulum; thermometer	Galileo Galilei (1564-1642)
Barometers; vacuums	Evangelista Torricelli (1608-1647)
Diffraction of Light	Francesco Grimaldi SJ (1618-1663)
First Electric Cell	Alessandro Volta (1745-1827)
Electrostatics and magnetism	Charles Coulomb (1736-1806)
Electromagnetic principles	André Ampère (1775-1836)
Optics and Wave theory of Light	Augustin Fresnel (1788-1827)
Polarimetry principles	Jean Biot (1774-1862)
Velocity of Light	Hippolyte Fizeau (1819-1896)
Gyroscope and pendulum	Jean Foucault (1819-1868)
Specific heats; gases; hygrometer	Henri Regnault (1810-1878)
Radio-transmission	Guglielmo Marconi (1874-1937)

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*Catholic Scientists From the 16th to the 19th Century*

Alexander J. Pollock B.Sc. (Hons), Catholic Truth Society, 1952.

# A Leaf Outsmarts Scientist

Solves Problem of Life Which Baffles Biochemists

Out-Quarterbacks Famed Angelo Bertelli of Notre Dame

by

JOHN A. O'BRIEN, Ph.D., LL.D.  
The University of Notre Dame

*Poems are made by fools like me  
But only God can make a tree.*

JOYCE KILMER

DID you ever hear of a leaf outsmarting a famous scientist?

The leaf was just an ordinary maple leaf.

Yet it solved a problem which baffled a scientist and all his colleagues.

The scientist is a distinguished biochemist, Lawrence H. Baldinger, Dean of the College of Science at the University of Notre Dame. He was assisted by many other scientists from other universities.

The problem proposed to him was:

"Build a bridge over which you can transport lifeless, inorganic matter into the world of organic life."

When the scientist appeared somewhat mystified by the question, it was restated in a simpler way, namely:

"Find a method of changing lifeless matter into living matter."

In our universe there are two kingdoms: that of inert, inorganic latter, and that of living protoplasm.

Between these two kingdoms there yawns a vast abyss.

## Can It Be Bridged?

Can it be bridged? Or must inorganic matter such as, nitrogen, carbon, iron, potassium, always remain like so many pieces of rock, never to enjoy the gift of life?

The abyss can be bridged. The above mentioned elements can be transported over that bridge into the kingdom where they enter upon the

intricate and mysterious dance of life.

How are they thus transported? What secret is whispered into the ears of these elements so that they begin at once to go through the rhythmic convolutions of the vital process?

That is the question I put to Dean Baldinger.

"The answer," said the dean, "is *photosynthesis*."

"Yes," I assented. "But what is photosynthesis?"

"That," replied the dean, "is the process by which the chlorophyll in a leaf utilizes the sunlight to break up the carbon dioxide in the air, retaining the carbon for its own plasm, and giving back the free oxygen to the air."

### **"What Is the Technique?"**

"Very interesting. But excuse me, please, if I seem somewhat persistent. What I want to know now is:

"How does a leaf perform that operation? What is the technique which the leaf has worked out whereby its billions of molecules are organised into armies, divisions, regiments and battalions, which execute with such precision and velocity these complicated maneuvers?"

"That," replied the dean, "is still a mystery."

### **"Too Much for Me"**

In 1943 Angelo Bertelli directed the Notre Dame football team through the complicated maneuvers of the T formation to a national championship. After the season had ended, I stopped him on the campus and inquired:

"What would you say, Bert, if I asked you to direct not merely the four Notre Dame teams at the same time, but a thousand million teams?"

"I would have to confess, Father," he replied, "that would be a little too much for me!"

"Yet, Bert," I pointed out, "that is what a leaf is doing each day of its life — in working out the biochemical operation of photosynthesis. It is directing thousands of millions of atoms with the composure and sureness with which you directed the eleven members of the Fighting Irish to a national championship."

"Gee," whistled the modest boy who had climbed the glamorous heights of All-American honors and who had just been awarded the Heisman trophy, as the outstanding gridiron warrior for 1943, "I had no idea a leaf was such a whiz as a quarterback."

### "Who Is the Quarterback?"

I related this incident to the dean. He smiled — knowingly.

"Now, dean, what I want to know is: *Who or What* is the leaf's quarterback? *What* are the signals it is calling? *Where* did it learn them? *How* are they passed on to the quarterbacks in all the other leaves? Please answer those four simple questions for me."

"There you have me stumped," answered the dean. "All I can say is that the chlorophyll *in some mysterious manner* utilizes the sun's rays to transmute the inorganic element into living protoplasm."

"In other words, then," I observed, "Photosynthesis is but a learned word to cloak our ignorance. It is formed by joining the two Greek words, *photos*, meaning 'light' and *synthesis*, meaning 'put together'. It tells us that the putting together is accomplished *in some way* through the aid of the sun's rays. It throws none of its rays, however, upon the dark and mysterious question as to how this putting together is effected."

### "It Doesn't Answer"

"Precisely," said the dean. "Photosynthesis is a mouth-filling term that satisfies the man-in-the-street, and even the university student. But it doesn't answer any of the deeper questions which you have raised. Philosophers and scientists are still wrestling with them, but thus far in vain."

"Dean," I said, "your answer reflects the humility and the reverence which characterize all true scientists."

I thought of the question which the journalist, Bruce Bliven, recently put to a group of scientists: "What incredible concatenation of circumstances brought the first cell into being among the atoms of such substances as hydrogen and oxygen?"

The scientists whom he interviewed were unable to answer. The transmutation of inorganic matter into living protoplasm, they pointed out, still remains among the most baffling of all the mysteries of nature. They confirmed the dean's answer.

The dean and I were standing under a maple tree. I glanced up at the thousands of leaves which, while we were philosophizing, were performing with ease and sureness the amazing operation of taking inorganic matter and imbuing it with the mystery of life.

Each leaf, I reflected, is a vast chemical laboratory with a brilliant biochemist directing the army of workers in their intricate task.

Or to change the metaphor, each leaf might be viewed as a football squad of a thousand million players, with a quarterback calling the signals for plays, which their rivals, aided by all their spies, have never been able to diagnose,

much less to duplicate.

I reached up and plucked a leaf. A world of teeming miracle and mystery quivered in my hand.

### **"One Step Further"**

"Dean," I said, "let's push this investigation one step further."

"How?" he asked.

"Analyse this leaf for me, please, and tell me all the elements of which it is composed."

"Come into the laboratory and I'll work it out for you."

When all his careful analysis had been completed, he said:

"The elements composing that leaf are: carbon, nitrogen, hydrogen, oxygen, iron, chlorine, phosphorus, sodium, potassium and silicon."

"All right now," I continued, "put these lifeless, inorganic elements back together again in such a way that they will perform the process of photosynthesis, the rudimentary action of all vegetal life."

"Oh, that's impossible. Neither I, nor all the biochemists in the world, together with all our wonderful laboratory equipment, can do such a thing."

"Why can't you? Aren't you and your colleagues intelligent?" I asked rather wickedly.

"Yes. At least we think we are," he added with a smile.

"But aren't the elements, carbon, hydrogen, nitrogen and the other elements which compose a leaf, unintelligent?"

"Yes."

"Why then can't you, with all your intelligence and with the accumulated experience of all the chemists who ever lived, do what these unintelligent chemical elements do with despatch, with unfailing regularity, and with unerring accuracy?"

### **"Some Principle"**

"Oh," replied the dean, "there's some principle which guides them in the performance of that complicated biochemical action."

"Precisely." I observed. "Like every investigator who has penetrated deeply into the character of the vital process, you see the necessity for some directing principle, some quarterback to call the signals for the well-nigh infinitely complicated maneuvers of the activity of life . . . Thanks very much, dean, for your . . . collaboration."

"It was a pleasure," replied the dean with a smile.

The literature of the philosophic and scientific quest for the ultimate in the vital process reveals a great variety of terms. While differing in their nuances,

they are as one in reflecting the conviction that there is some operating principle which is necessary to explain the phenomenon of life.

Aristotle calls it an *entelechy*; St. Augustine, a *ratio seminalis*; Hegel, a *bewusstlose Zweckthaetigkeit* or plastic instinct; Blumenbach, the *Bildungsstrieb*, or the *nitus formativus*.

Nageli has a longer word for it in *Vervollkommungsprinzip* or *tendency to progressive development*. General J. C. Smuts has popularized it under the label, *holism*. Henri Bergson styles it the *elan vital* or *vital principle*.

Driesch returns to the *entelechy* of Aristotle, describing it as "an agent *sui generis*, non-material and non-spatial but acting 'into' space, so to speak." Reinke calls it "steersman of the energies." St. Thomas Aquinas and the Scholastics call it the *vegetal soul*.

### An Age-Old Quest

The record of the attempts of the greatest philosophers and scientists to peer deep into the mystery of life discloses the universal conviction that there is operating therein a directing principle, a guiding power, of the most subtle and mysterious character.

The effort to grapple with it, to discover its intimate nature, to wrest from its heart the secret by which it bridges the abyss separating the inorganic kingdom from the world of life, is one of the most arresting and fascinating problems which has challenged the intelligence and the industry of philosophers and scientists throughout the centuries.

The quest has not yet been crowned with success. Perhaps it never will be. The probe has gone deep enough, however, to catch glimmerings of the working of a Supreme Intelligence, whose grandeur and majesty are reflected in the mysterious and awe-inspiring activities of the tiniest living cell.

That Supreme Mind, that omnipotent Power, that infinite Being, whom we call by the venerable name of God, has mirrored something of His transcending wisdom in the vast network of laws which guide the molecules in the dance of life and which hold the stars in their appointed orbits as they whirl through the vastness of cosmic space.

Whoever probes deeply into the unsounded depths of life, as represented by the vital process of a single leaf, experiences much the same sense of awe and reverence before the mirroring of Divine Power as does the astronomer who peers through his telescope at the millions of worlds coursing through the immeasurable reaches of interstellar space.

### Getting the Signals

The subtle and mysterious laws which guide the electrons in their

mysterious convolutions within a living cell, and those which guide the Pleiades in their swing through the trackless skies, may be said to be the objectified thought of the Great Naturalist and the algebraic formulae of the Divine Mathematician. Well has Wordsworth said:

*To me the meanest flower that blows can give*

*Thought that do often lie too deep for tears.*

If we could look deeply enough into the mysterious and unfathomed network of law in any single object in all creation, we would see God and understand man, nature and God. Tennyson gave admirable expression to this mighty truth when, in passing through a forest, he beheld a flower bursting out of the crevice in a wall, which he thus apostrophised:

*Flower in the crannied wall,*

*I pluck you out of the crannies,*

*I hold you here, root and all, in my hand,*

*Little flower — but if I could understand*

*What you are, root and all, and all in all,*

*I should know what God and man is.*

The great scientist, Robert Andrew Millikan, expressed this same thought when he described his researches into the nature of the cosmic ray high up in the stratosphere of the sky as "the finger printing of God"

Yes, the vital principle in a leaf outwits a scientist, and it out-quarterbacks Angelo Bertelli. Why? Because it is getting its signals from the divine Quarter-back, Almighty God, the Creator of life, the Architect of the Universe, and the Ruler of its every part from protozoic cell to farthest star.



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#### **Editorial comment**

Though somewhat dated, this article poses fundamental questions unanswered by modern biochemistry, aided by the electron microscope. (We now know that the oxygen produced as a by-product comes from the splitting-up of water, rather than from carbon dioxide). The complex structure of chlorophyll and the chloroplast, and the remarkable organisation of the metabolic pathways, are good examples of 'irreducible complexity' of design. ¶

# **Historical Sketch: Robert Thomas Malthus (1766-1834)**

*Ian Taylor*

During the last one hundred years an enormous number of books have been written about Darwin, and doubtless there will be another flood of publications this centennial year of his death. They all acknowledge that Darwin based his theory upon the combined ideas of men before him. Two names are invariably mentioned, Robert Thomas Malthus and Charles Lyell. A third, Alfred Russel Wallace, is cited as co-discoverer of the theory but then is quickly eclipsed and forgotten by the towering image of Darwin. There are other names of lesser importance. Each contributed part of an idea while succeeding names built upon them until the synergist Darwin brought it all together. The contributions of Lyell and Wallace are fairly well known among creationists, but interestingly that of Malthus is hardly ever mentioned. Nevertheless his one work, for which he finds a place in history, was highly influential to both Darwin and Wallace.

Robert Malthus was born the sixth child of seven in 1766 in England. His only distinguishing features would seem to be that he was born with a hare lip and cleft palate, although this was alleged not to have seriously impaired his speech or social life. After graduating with a degree in mathematics from Jesus College, Cambridge, he entered the Anglican church and became ordained a few years later. He was an academic by inclination and returned to Cambridge University for the next ten years. When almost forty he was married then appointed professor of modern history and political economy at Haileybury College where he spent a quiet life lecturing and writing until he died in 1834.

Following the French revolution in 1789 a number of early socialists began to advocate the type of government they thought would lead to Utopia. Among them was Condorcet who said that the happy human state would result from all men being given equal opportunity. Malthus wrote a rebuttal in 1798 entitled "Essay on the principle of Population" in which he pointed out that a Utopia of this sort would be self-defeating since with the approach of ideal conditions the resulting idleness would lead to an unbridled birthrate such that the burden of population would soon outstrip the food supply. He expressed himself in the famous principle:

"Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio."

Malthus suggested that the population was increasing every twenty-five years at the geometrical rate of 1, 2, 4, 8, 16, 32, 64, 128, 256 . . . while the

food supply was increasing during the same time at the arithmetic rate of 1, 2, 3, 4, 5, 6, 7, 8, 9 . . . The population in his example is seen to double every 25 years while the food supply, expressed in say, tons of wheat or acres of cultivated land, increases by only a uniform increment each generation. Malthus pointed out that in three centuries the ratio of population to food supply would be 4,096 to 13. The figures rivet the attention and the spectre of starving humanity standing cheek by jowl on every available square foot of dry land becomes imminent.

It was evident to Malthus that there must be factors limiting population growth and he suggested in his first (1798) edition of the "Essay" that it was subsistence itself which limits the population by what he called "misery and vice." The picture he proposed was that the population level was always pressing against the food supply. Misery in the form of famine, plague, etc. was nature's way of providing the limitation. Vice, on the other hand, was man's contribution to limiting the population. As examples of human vice Malthus included contraception, infanticide, and warfare. One of the ironies of modern times is that the term "Malthusian" has become a euphemism among advocates of birth control and there is even a device on the British market named after Malthus. He would surely turn in his grave! Malthus himself rather loosely suggested abstinence by later marriage as the solution to the population problem.

The "Essay" was severely criticised for its depressing view and the fact that Malthus saw man as a bestial brute whose passions were only kept in check by misery. In short, he had not credited man with any measure of dignity. He collected more data and published a second expanded version of the "Essay" in 1803 in which he introduced two other factors: "preventive check" and "positive check." The former limited the birth rate and the latter enhanced the death rate by shortening or removing lives. By "preventive check" Malthus did not mean contraception but moral or self restraint. However, this factor had the effect of vitiating the very principle with which he first set out because it now stood as a buffer between men and misery. Man no longer seemed the brute beast that Malthus had earlier claimed. In spite of the contradiction, the brute image of man still remained steadfast in his mind. This is evident from some of his recommendations which appeared in subsequent editions of the "Essay":

"Instead of recommending cleanliness to the poor we should encourage contrary habits. In our towns we should make the streets narrower, crowd more people into the houses, and court the return of the plague. In the country, we should build our villages near stagnant pools, and particularly encourage settlements in all marshy and unwholesome situations. But above all, we should reprobate (strongly condemn) specific remedies for ravaging diseases; and those benevolent, but much mistaken men, who have thought they were doing a service to mankind by projecting schemes for the total extirpation of particular disorders."

This somewhat bourgeois approach to social problems might be unexpected today coming from an ordained Anglican minister, but sadly in nineteenth century England it was not so unusual. There were a few objections from more orthodox Christians. However, the principal reason no action was taken upon

Malthus' recommendations to limit population was simply that the factories needed a vast supply of cheap labour.

Charles Darwin read the "Essay" containing the recommendation in 1838 and comments in his notebook:

"... I happened to read for amusement Malthus on Population, and being prepared to appreciate the struggle for existence ... it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones destroyed. The result would be the formation of a new species."

Alfred Russel Wallace also read the "Essay" and drew the same conclusion in 1858. Recent investigations raise the possibility that in fact it was Wallace's original revelation and upon receipt of a letter from Wallace in 1858, Darwin merely claimed to have thought of it earlier. In any event, it is seen that the "Essay" forms a vital part of the theory of evolution.

Malthus has been eulogized as "the father of social science" and has a great following. It has also been argued that his principle is "as sure as the multiplication table." Who then would find objection to it? The following objections have been pointed out by a number of authors, including Karl Marx. Because they touch at the very roots of Darwin's theory, however, it is somehow considered unethical, even heresy, to mention them. Frequent objections include the following:

1. The first national census in Britain was taken in 1801, three years after Malthus wrote his "Essay". Thus he had no reliable statistics to work with to determine either population levels or rates of increase. His geometric rate of increase was purely a theoretical assumption. All that can properly be said is that populations will tend to expand to fill the available space.
2. There was no way to determine cultivating acreage, or indeed, cultivated acreage so that his arithmetic increase can also only have been an assumption.
3. The principle precludes the possibility of obtaining the evidence to prove it. If the population can never exceed the food supply it can never be known in fact that it is the food supply which checks the population. For instance, other factors could check the population before the limit of the food supply is reached and Malthus conceded "moral restraint" as one of these factors.
4. The principle contains an internal contradiction. In focusing his attention on the human population Malthus had overlooked the obvious objection that if humans multiply geometrically then why don't all the plants and animals which provide for human subsistence. The whole equation then becomes spurious as are all the numbers which at first might appear to be so convincing. In practice, neither men, plants nor animals multiply geometrically. Their rate of increase depends upon the respective checks imposed by the environment upon their expansion. The entire ecosystem including man is, or was as we are now beginning to find out, in a very delicately balanced harmony far removed from the depressing "eat or be eaten" struggle for survival envisioned by Malthus.

The final irony in all this Malthusian pseudo-science is that Malthus intended

to show that human society could never progress upward to perfection, whereas Darwin took this same principle to show that by evolution not only human society but all living things have always progressed upward becoming more perfect. The lesson in all this is that Darwin and others who reject both God and the promise of his providence and intervention have found in the Malthus principle a terrifying spectre of tragedy and despair that has driven them into unspeakable ethical and absurd scientific propositions. This in spite of the obvious weaknesses and deficiencies in Malthus' argument.



**Barges unloading supplies at dock of medieval European town.  
(15th century woodcut)**

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**DAYLIGHT ORIGINS SOCIETY**

**FINANCIAL STATEMENT**

January 1998 - December 1998

INCOME	£	EXPENDITURE	£
Subscriptions	886	Printing/copying	642
Donations	381	Postage	346
Books and tapes	348	Stationery/office	190
Videos	388	Books and tapes	302
Interest	5	Videos	306
		Telephone/electricity	30
		Subscriptions	96
		Meetings/travel	140
<b>Opening credit</b>	<b>675</b>	Bank charges/tax	1
<b>Total income of year</b>	<b>2008</b>	<b>Total expenses</b>	<b>2053</b>
		<b>Credit balance</b>	<b>630</b>
	<b>2683</b>		<b>2683</b>

NOTES

1. Book and video sales improved by 55% over the year compared with the previous 16 months.
2. Only three issues of 'Daylight' were produced over the year: hence printing and postage costs were reduced.
3. Credit for subscriptions has been spread to cover this.

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